

STATUS OF CLAIMS

Claims 1-21 (canceled).

22. (currently amended): A thermocouple comprising a sensing tip in electrical connection with a mineral insulated thermocouple cable characterized in that additional external shielding is provided by a low temperature sintering refractory material including particulate borosilicate and boric acid powder.

23. (previously presented): A thermocouple as claimed in claim 22 characterised in that the shielding is in the form of a sheath having inner and outer metal tubes constricted over a filler of low temperature sintering refractory material.

24. (previously presented): A thermocouple as claimed in claim 23 in which the outer tube is mechanically constricted to compact the filler.

25. (previously presented): A thermocouple as claimed in claim 24 in which the constriction is effected by drawing, swaging or rolling.

26. (previously presented): A thermocouple as claimed in claim 22 in which the particulate borosilicate comprises between 6% and 10% by weight of the refractory material.

27. (previously presented): A thermocouple as claimed in claim 26 in which the boric acid powder comprises about 3% to 5% weight of the refractory material.

28. (previously presented): A thermocouple as claimed in claim 27 in which the boric acid powder content of the refractory material is about one half of the particulate borosilicate content.

29. (previously presented): A thermocouple as claimed in claim 23 in which the tubes of the sheath are stainless steel.

30. (previously presented): A thermocouple as claimed in claim 23 in which the refractory material is predried at a temperature of between 135° and 150°C.

31. (previously presented): A thermocouple as claimed in claim 30 in which the refractory material is at least partially sintered before the thermocouple is used.

32. (previously presented): A thermocouple as claimed in claim 31 in which the refractory material is beaded before being formed into the sheath.

33. (currently amended): A thermocouple comprising a sensing tip in electrical connection with a mineral insulated thermocouple cable characterized in that additional external shielding is provided by a low temperature sintering refractory material including particulate borosilicate and boric acid powder, in which the tip is formed from a thermocouple cable with a negative metal tube housing a positive wire embedded in the low temperature sintering material.

34. (currently amended): A thermocouple as claimed in claim 32 in which the tip is formed by providing a hot junction from ~~the~~ wires of the thermocouple cable and supported by the sheath with both tubes and the refractory material formed to cap the hot junction.

35. (previously presented): A thermocouple as claimed in claim 34 in which the outer tube of the sheath is annealed after being constricted and the refractory material at least partially sintered during annealing process.

36. (currently amended): A method of shielding a thermocouple comprising the steps of locating beads of suitably bound refractory material between an inner metal tube and an outer metal tube and reducing ~~the-a~~ sheath down to a predetermined size by drawing swaging or rolling during which process ~~the-a~~ beaded refractory material is compacted between the inner tube and the outer tube.

37. (previously presented): A thermocouple as claimed in claim 26 in which the boric acid powder content of the refractory material is about one half of the particulate borosilicate content.

38. (currently amended): A thermocouple as claimed in claim 22 further comprising a sheath having tubes in which the tubes of the sheath are stainless steel.

39. (previously presented): A thermocouple as claimed in claim 22 in which the refractory material is predried at a temperature of between 135° and 150°C.

40. (currently amended): A thermocouple as claimed in claim 22 in which the refractory material is beaded before being formed into ~~the-a~~ sheath.

41. (previously presented): A thermocouple comprising a sensing tip in electrical connection with a mineral insulated thermocouple cable characterized in that additional external shielding is provided by a low temperature sintering refractory material including particulate borosilicate and boric acid power, the shielding is in the form of a sheath having inner and outer metal tubes constricted over a filler of low temperature sintering refractory material. A thermocouple as claimed in claim 23 in which the tip is formed by providing a hot junction from the wires of the thermocouple cable and supported by the sheath with both tubes and the refractory material formed to cap the hot junction.

42. (previously presented): A thermocouple as claimed in claim 23 in which the outer tube of the sheath is annealed after being constricted and the refractory material at least partially sintered during annealing process.